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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,080	10/08/2003	Vilho Nissinen	3397-94PDIV	6252

7590 04/18/2007
COHEN, PONTANI, LIEBERMAN & PAVANE
551 Fifth Avenue, Suite 1210
New York, NY 10176

EXAMINER

CORDRAY, DENNIS R

ART UNIT	PAPER NUMBER
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1731

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/681,080

Applicant(s)

NISSINEN ET AL.

Examiner

Dennis Cordray

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 60-73, 78-85, 88, 89, 91, 94-96, 100-105, 107 and 108 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 60-73, 78-85, 88, 89, 91, 94-96, 100-105, 107 and 108 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's amendments, filed 2/6/2007, have removed the basis for the rejections under 35 U.S.C. 112. Applicant's arguments with respect to the rejections under 35 U.S.C. 103(a) have been fully considered and are persuasive. The rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made as detailed below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 60, 62-70, 78 and 81 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Dettling et al (6413591) as evidenced by Haylock ("Paper, Its making, merchenting and usage", 3rd ed, The National Association of Paper Merchants, London, 1974) and Virtanen (WO 97/32934).

Claims 60, 62: Dettling et al discloses a method of coating a paper (treating the surface of a web of cellulosic fibers) with a composition comprising fines, fibrils, fibers and/or calcium carbonate (placing the calcium carbonate on the web) without using a binder (Abs; col 3, lines 33-40; col 5, lines 54-59; col 6, lines 2-5). A preferred pigment is precipitated calcium carbonate having a particle size from 40 nm to 2 μ m, which overlays the claimed range. In an example, calcium carbonate particle sizes from 50 to 100 nm are used (col 7, lines 40-46).

Making a paper web inherently includes forming a web from fibers (if evidence is needed, see Haylock, p 69, (A) The wet end, item 1, which teaches a typical papermaking process comprising spreading fibers onto a moving web-formation substrate or wire).

Claim 61: While Dettling et al discloses a preferred particle size of 40 nm to 2 μ m, smaller particle sizes are not prohibited.

Claim 62: Particles in the size range of 100 nm are subject to van der Waals binding forces of about 1,000,000 Pa (if evidence is needed, see Virtanen, WO 97/32934, p 7, lines 17-23). The force increases with smaller particles, thus the particles in the disclosed size range are subject to van der Waals binding forces.

Claims 63-64: The coating contains fines, fibrils, fibers and/or pigments, thus can comprise essentially all calcium carbonate particles in some embodiments (col 3, lines 33-40).

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Claim 78: Dettling et al discloses abrading the web prior to coating to increase its specific surface area. The increased surface area increases surface bonding sites, thus promotes adherence of particles to the surface (col 4, lines 21-28 and 45-51).

Claim 81: Calendering is disclosed as a post-treatment (col 7, lines 33-35).

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

3. Claims 65-70 rejected under 35 U.S.C. 103(a) as being unpatentable over Dettling et al, as evidenced by Haylock, in view of Virtanen.

Dettling et al does not disclose applying a pigment in the form of flocked aggregates.

Virtanen (WO 97/32934) discloses a coating pigment used in paper manufacturing comprising pigment particles or calcium carbonate agglomerates from 40 to 400 nm in diameter coated with precipitated calcium carbonate particles. The size of the clusters is regulated by adjusting the pH of an aqueous dispersion of calcium carbonate or by applying high energy stirring (creating a turbulent flow) (Abs; p 7, lines 1-5; p 8, lines 7-16; par bridging pp 9-10; p 10, lines 23-28). In a preferable embodiment, the agglomerates are used for coating paper (p 1, lines 13-18; p 9, lines 19-21). The agglomerates provide advantageous properties of both the pigment particles or calcium carbonate agglomerates and the precipitated calcium carbonate coating while avoiding their disadvantages (p 3, lines 1-3).

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The art of Dettling et al, Haylock, Virtanen and the and the instant invention is analogous as pertaining to papermaking and paper coating compositions. It would have been obvious to one of ordinary skill in the art to use agglomerated particles in the coating material of Dettling et al, as evidenced by Haylock, in view of Virtanen to take advantage of the properties of the core and coating particles.

4. Claims 73, 88-89, 91, 94, 100 and 103 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dettling et al in view of Haylock and further in view of Ilmasti et al (WO 98/11999).

The disclosure of Dettling et al and Haylock are as above.

Dettling et al does not disclose applying calcium carbonate to the web by an ion blast technique. Dettling et al also does not disclose the method of forming the paper web by spreading fibers on the surface of a moving formation substrate. Dettling et al does disclose formation on a wire (col 1, lines 6-67), which is the moving "screen" at the wet end of a paper machine where the sheet is formed.

Haylock teaches a typical papermaking process comprising spreading fibers onto a moving web-formation substrate or wire. Haylock teaches that the web is further treated by pressure rolls (mechanical treatment) (p 69, (A) The wet end item 4). Finishing steps include calendering using one or more heated rolls to achieve a smooth finish (p 102-103, Calendering). Coating is a typical finishing step as well used to apply pigments and polymeric adhesives (p 116, Coating). Calendering is a step following coating that provides the best finishes (p 118, 3rd par). Some of the calendar rolls can

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be heated (p 103, first half of page). Fillers and pigments can be added to the pulp (p 60, Loadings or Fillers to p 61, Sizing Agents). Formation of a nonwoven web from cellulosic fibers, plant fibers, glass fibers or other fibers is a well known (p 13, last par). Peel does not disclose applying calcium carbonate to the web by an ion blast technique.

Ilmasti et al discloses a method of transferring material additives to the surface of a moving web, for instance paper, wherein the web is manufactured by a conventional continuous web formation process (p 1, lines 4-9). Application of dust or sprayable materials is disclosed (p 2, lines 10-11). The web passes through a housing wherein the additional material is transferred to the web by ion blasting provided by a high voltage potential between high voltage electrodes above the web (second electric potential) and a plate electrode (first electric potential) below the web (p 2, lines 5-15; p 3, lines 1-12). The web moves across the lower plate electrode and is thus brought to a first electric potential by virtue of moving to the plate. The method transfers material quickly and evenly to the surface of the moving web (p 2, lines 1-3) and results in decreased water usage and therefore decreased need for drying (p 2, lines 25-28).

The art of Dettling et al, Haylock, Ilmasti et al and the instant invention is analogous as pertaining to making and coating paper with pigments. It would have been obvious to one of ordinary skill in the art to use an ion blast method to coat the paper of Dettling et al in view of Haylock and further in view of Ilmasti et al to obtain an even coating and save on water usage and drying requirement. It would also have been obvious to form the paper using standard processes and apparatus, including

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spreading fibers on the surface of a moving formation substrate, draining, drying and calendering.

Claim 73: Dettling et al, Haylock and Ilmasti et al do not explicitly disclose a solids content of the treatment material of at least 80%. However, the method of Ilmasti et al is applicable to powders, which are 100% solids. It would have been obvious to one of ordinary skill in the art to use a treatment composition of up to 100% solids in the method of Dettling et al in view of Haylock and further in view of Ilmasti et al to minimize the amount of drying required after the coating.

5. Claims 79-80 and 101-102 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dettling et al in view of Haylock and further in view of Ilmasti et al and Yagi et al (4944959).

Dettling et al, Haylock and Ilmasti et al do not disclose treating the web by brushing to establish a static charge. Ilmati does disclose that conventional methods of addition include changing the electrical properties of the surface (p 1, lines 14-16).

Yagi et al discloses applying a charge to a substrate, thereby changing the electrical properties of the substrate, by using frictional contact (col 4, lines 55-62). The frictional contact can comprise rubbing the surface with an appropriate material to impart a positive or negative charge as desired to the surface (col 5, lines 8-65). The electrostatic recording process wherein toner particles adhere to a charged surface is well-known.

The art of Dettling et al, Haylock, Ilmasti et al, Yagi et al and the instant invention is analogous as pertaining to pigments and calcium carbonate used in papermaking. It would have been obvious to one of ordinary skill in the art to to pretreat the paper to generate a static charge by frictional brushing in the method of Dettling et al in view of Haylock and further in view of Ilmasti et al and Yagi et al to better attract and hold the pigment particles. Brushing inherently lifts the microfibrils from the surface as well as providing a static charge.

6. Claims 107-108 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dettling et al in view of Haylock and further in view of Ilmasti et al and Andersen et al (WO 95/18885).

Dettling et al, Haylock and Ilmasti et al are applied as in the rejection of Claim 88. Dettling et al, Haylock and Ilmasti et al do not disclose obtaining the calcium carbonate from the residue of a deinking process.

Dettling et al discloses that the coating can comprise a conventional coating color (pigment) (col 4, lines 21-28).


Andersen et al discloses recovery of calcium carbonate from sludge that is a by-product of the manufacture of recycled paper (sludge from a deinking process, for instance) comprising calcining the mineral precipitate into lime, reacting the lime with water and reacting the calcium hydroxide with carbon dioxide (Abstract; p 7, lines 25-29).

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The art of Dettling et al, Haylock, Virtanen, Ilmasti et al, Andersen et al and the instant invention are analogous as pertaining to pigments and calcium carbonate used in papermaking. It would have been obvious to one of ordinary skill in the art to use recycled calcium carbonate processed from a waste sludge, such as a deinking sludge, in the coating process of Dettling et al in view of Haylock and further in view of Ilmasti et al and Andersen et al as a functionally equivalent option and to make use of inexpensive raw materials. Calcining the mineral precipitate into lime, reacting the lime with water and reacting the calcium hydroxide with carbon dioxide is a well-known process and would have been obvious.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



STEVEN P. GRIFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ORE

DRC


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